AN ESSAY–REVIEW OF JAMES E. ALCOCK'S PARAPSYCHOLOGY: SCIENCE OR MAGIC? A PSYCHOLOGICAL PERSPECTIVE*

MICHAEL A. THALBOURNE

Consider the following anecdote. Sometime during 23 March, 1983, as I was going about various mundane chores at home, and thinking about nothing in particular, I began to have images from the concluding scenes of the motion picture *Tess* (which is based on Thomas Hardy's novel *Tess of the d'Urbervilles*). Readers acquainted with that story will remember that the heroine Tess, after killing her husband and escaping with her lover into the English countryside, is at length caught up with by the police, at Stonehenge. There she is apprehended, charged with murder, and in the end is hanged for the crime. Though we did not in the movie get to see the actual hanging, nevertheless the remembrance of this story, occasioned by an image of Stonehenge in semi-darkness, made me start thinking how awful it must be to experience death by hanging. If ever I wanted to commit suicide I would never even *consider* hanging myself—choking seems to be a particularly unpleasant and gruesome way to exit this life. But these thoughts drifted on down the stream of my consciousness as I continued my chores, and floated more or less out of mind.

Next day was my birthday, and as happy as all the well-wishers intended. So it came as a surprise and contrast to learn from my colleagues that evening that the university department to which I was attached had been plunged into gloom by the news that that morning, a student had been found in one of the laboratories, having hanged himself. Unfortunate, I thought, but it failed to have the impact that it might have had had I known the person well. Distant tragedy could not dampen birthday cheer. If anything, I was more interested in the odd coincidence between the event and what I had been thinking about just the day before.

It was not until the following evening that I learnt the appalling truth that I *did* know the dead student; I was all the more shocked because I'd never known him as anything other than cheerful and jocular. We had even toyed with the idea of getting together a little group for conversing in Esperanto, in which language he would habitually greet me. *Sed nun lia lango ne parolas.*

Yet the story does not end there. On 18 April, I was recounting this coincidence to a friend who is usually distinctly scathing of 'psychic experiences'. In this case however, he seemed prepared to relent, owing to a personal coincidence perhaps even more striking than my own. Around the night of 24 March, he had been reading, in French, the *Petits poèmes en prose* of Baudelaire. One of the poems, *The Cord*, so struck him that he then and there related the story to his room-mate. Briefly, Baudelaire had taken into his home a young pauper as artist's model and errand-boy; the lad 'very soon manifested an immoderate fondness for sugar and liqueurs' (Symons, 1926, p. 54), and his master had to admonish him repeatedly, even threatening to send him back to his parents. After one such occasion, Baudelaire left the house for several hours, and, upon returning, found to his horror that the boy had hanged himself!

* Oxford: Pergamon Press, 1981. Pp. 224.

My friend said that none of the other poems had had such an effect that he had been moved to describe it to his flat-mate. And, though normally sceptical about such things, he claimed that it was later that same evening that they were both telephoned by another friend, who told them the sad news of the untimely death of our own young man.

I cannot resist adding this final ironic incident. Much later, when I wanted to document my own coincidence, I went in search of a copy of Hardy's novel. Being an admirer of the Penguin Classics series, I had determined to buy the Penguin edition of the book. I discovered that on the front cover of the paperback was a reproduction of Turner's painting, 'Stonehenge'.

Now few persons, I think, would deny that some resemblance exists between these apparently isolated events. The differences of opininion would centre around the *interpretation* of the conicidences. To those of a particular outlook, the coincidences look very much like instances where an impression arises, or behaviour occurs, suggestive of a psi-mediated reaction to a distant event. The events are causally linked, but in a paranormal fashion. To persons of a *different* persuasion, however, if no *normal* explanation is forthcoming for the observed conjunction of events, then the conjuction is probably an example of coincidence pure and simple, seeing as (a) we should *expect* even striking coincidences occasionally, just by chance, and (b) there is no scientifically acceptable evidence that 'paranormal' coincidences do occur. In fact, as the burgeoning new specialty of anomalistic psychology (Zusne & Jones, 1982) attempts to persuade us, there are *myriad* situations in which human beings can misprocess events in such a way as to convince themselves that the events are causally related when in fact they are not.

Now no sane parapsychologist should deny the *partial* validity of the anomalistic-psychological viewpoint. It is undoubtedly the case that people *sometimes* come to believe in the paranormal for the wrong reasons. But it is the thesis of James E. Alcock, in his book *Parapsychology: Science or Magic?*, that such beliefs *always* arise for the wrong reasons.

Alcock, a psychologist at York University in Toronto, is also a Fellow of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). His book which seeks to stigmatize parapsychology as a pseudo-science based on wishful-thinking, is perhaps one of the more substantial critical reviews to have appeared in recent years. Detailed responses have been thought appropriate, and the book has thus been reviewed at unusual length (see Morris, 1982; Stanford, 1982; and Palmer, 1983a,b; see also Hyman, 1982, and Child, 1984).

In the Foreword to his book, Alcock states that he intends the work to be 'a critical perspective on parapsychology' (p. vii). It is *not* intended to be a 'comprehensive history of experimental parapsychology nor a detailed treatment of classic research and supposedly gifted individuals'. Alcock seems not to have conducted any psi-research of his own, and relies heavily upon the negative conclusions drawn by other critics, most notably Hansel. The reader is not directed to any of the highly critical reviews of Hansel himself, that of Honorton (1981) being only the most recent of many.

It seems that the only evidence that Alcock would accept as conclusively demonstrating the existence of psi would be that of a repeatable experiment, and

one which could be performed by any sceptical scientist. On the surface, this seems reasonable enough. But I find that critics seem loath to specify more exactly what they mean by 'repeatable'. Do they mean that the effect must occur 100 per cent of the time? Then many effects in psychology, and even medicine and the harder sciences, would not count as repeatable. If we allow less than 100 per cent, then what percentage should we specify? If one says 30 per cent, then the Sheep-Goat Effect would probably count as repeatable, along with other psi effects such as those associated with the Ganzfeld and the Defense Mechanism Test. Alcock seems entirely ignorant of the important and fruitful 'probabilistic' approach to evaluating psi evidence, espoused most forcefully by John Palmer (e.g. 1977), and which compares significant and non-significant studies in an effort to determine the degree of replication achieved. It thus seems more realistic to speak, as meteorology does, it terms of the *probability* that a psi effect will occur as predicted. Repeatability is not an all-or-none attribute.

Alcock informs us that since he believes there is no good evidence for psi, he will be focusing on the problems of parapsychology, and on accounting for the widespread *belief* in psi phenomena (though he says very little at all about accounting for *dis*belief in these phenomena—a point to which I shall recur). A tedious and unfair practice in which he engages even at this early stage is to lump psi in with all sorts of non-parapsychological anomalous claims—creationism, the Bermuda Triangle, Satanism—as if they were all in the same category scientifically and all equally dangerous to society. A fervent social evangelism pervades much of the book, as if belief in psi were not only wrong but corrupting of the minds of the youth because it is anti-scientific.

Alcock divides his book into nine chapters. For my liking, I would have preferred a re-ordering of certain chapters. Alcock is concerned in part to explain *all* ostensible psi experiences in terms of misprocessing of normal cognitive information. However, such an exercise loses much ground if there exists good evidence for psi from controlled experiments: the paranormal hypothesis can then be plausibily invoked in the case of at least *some* cases of ostensible spontaneous psi. Thus, it would seem that a condensed review of the best of the experimental evidence is essential. Only after coming to an informed negative opinion about that can one proceed to demolish the spontaneous phenomena. Thus, I would have preferred to have seen Chapters 6 and 7 precede Chapters 3, 4 and 5. Indeed, I shall review them in that order.

The book's opening chapter is a brief introduction to psychical research. Alcock provides a set of rather careless definitions of supposed paranormal phenomena. Moreover, he is in danger of including in the domain of the paranormal claims we would call not parapsychological but simply 'anomalous', such as astrology and pyramid power. A short overview is given of the history of parapsychology. This is adequate for the most part but misleading as regards the reasons for the disappearance of psi-stars at Duke: Alcock regurgitates the usual cynical (and unsubstantiated) explanation that there is an inverse correlation between rigour of controls and quality of psi-evidence.

Alcock frequently claims that a necessary condition for an experimenter to obtain positive evidence for psi is that he or she be a believer in psi. This is a gross overgeneralization which can be shown to be incorrect by reference to the case of Wilson (1964). Though a sceptic, Wilson carried out a sheep-goat study, and

much to his consternation, obtained significant results in line with the parapsychological hypothesis. Thus, be it noted, his scepticism did not inhibit the production of evidence for psi. It should also be noted that Wilson proceeded to carry out a second study and analyzed it improperly, with the result that no evidence of psi was found. This enabled him to dismiss the first result as chance, though as Billig (1972) points out in his excellent critique, a correct treatment of the data would have yielded positive results. Disbelief is thus no less error-prone than belief, though few sceptics admit this.

Cases where scepticism has in fact been converted to belief can be drawn, for example, from the literature of mediums and sensitives. However, these would be unlikely to persuade Alcock, who feels able to assert, with no evidence or reference, that all the great mediums and sensitives of the past have been proven to be frauds. I should be interested to learn the details of the unmasking of such notables as D. D. Home and Mrs. Piper.

Jumping forward now to Chapter 6, 'Science or Pseudo-science: the Case of Parapsychology'. Alcock begins by discussing the nature of science, and then goes on to ask why science is so successful. He claims that it is because it demands 'consistency and empirical validation rather than simple opinion' (p. 105). He might have added that there are additional reasons for the success of physical science, namely, the fact that so much more money and man-power are poured into it (often with profit in mind), and also because living systems are so much more complex than non-living ones that predictive power is bound to be more difficult to achieve.

Alcock seems to think all parapsychologists are closet metaphysicians and anti-materialists. I doubt whether this is a valid generalization. Particularly amongst younger parapsychologists there is an absence of the anti-physicalistic fervour that motivated MacDougall and Rhine: there is more often the recognition that the existence of psi challenges the assumptions encapsulated in the Basic Limiting Principles, without necessarily entailing new 'spiritual' dimensions.

Alcock questions whether the Kuhnian view of scientific change is as relevant as some parapsychological writers have hoped. Various parapsychologists would agree with him there (e.g. Hövelmann, 1984). However, it is striking that a writer who is himself a psychologist should draw all his examples of scientific revolutions from the physical sciences. He admits at one point that 'most social scientists do not claim that their domains have yet achieved the status of "science" (p. 175). I assume that he means to include psychology in this statement. If so, it would be interesting to ask him what characteristics make psychology less than science—what he would call a 'proto-science' (p. 117)—and yet not a pseudo-science. Certainly, psychiatry has been accused of being the latter.

Though some philosophers define an area of enquiry as 'science' purely on the basis of the methods used by its practitioners, others demand that the field in addition have certain concrete accomplishments and discoveries to its credit. Alcock subscribes to the latter view, accepting Mario Bunge's eight suggested criteria for branding an area as pseudo-science. He lists these criteria on p. 144, and discusses in detail their applicability to parapsychology. The criteria

themselves are vague and debatable, rendering their application subjective and problematic.

Alcock alleges that psi phenomena are often person-dependent and need-elicited: that is, they are produced only when a certain person is around or when someone wants them to be produced. 'Physics is not like this'. Yet physics deals with the physical world, and psychology and parapsychology with the psychophysical domain—the world of consciousness and behavior—which physics tends to shy away from. It may thus be unreasonable to expect that phenomena in one area of the universe will necessarily have exactly the same properties as events in a different domain. Gravity may not be consciousness-dependent, but pain is; and human action cannot adequately be explained except in terms of intention and desire.

Alcock accuses parapsychologists of believing, *a priori*, in the phenomena they investigate. But a hypothesis is not necessarily false simply because we wish or believe it to be true. Nor does belief in the existence of a phenomenon render an investigator utterly unsuitable for researching that phenomenon. Shouldn't *a priori dis*belief likewise disqualify the investigator? What scientist can maintain an attitude of complete impartiality?

Alcock castigates parapsychology for its lack of a unifying theoretical basis and supposedly for lacking a 'clearly established corpus of empirical evidence' (p. 119), not to mention its lack of progress. As mentioned above, he fails to acknowledge the modest degree of replicability already attained in psi research. Moreover, he is very cavalier in dismissing the theories that have been articulated, such as the Observational Hypotheses and Conformance Theory. One mean trick in which Alcock indulges to a shameful degree is to single out for attention an example of a given error or extravagant claim in parapsychology and imply that it is representative of the entire field. The sinless are pilloried for the sins of the few. He charges us with various lapses of critical scholarship, yet most of the best criticism comes from within parapsychology, and Alcock fails to establish whether such lapses occur to any greater degree in psychical than in other research. He also makes the incredible statements that failures to replicate are ignored and that our journals are not interested in publishing them. A more than superficial acquaintance with modern parapsychology would have quickly sufficed to expose the falsity of these charges.

Alcock in fact often commits the same blunders that he accuses parapsychologists of making! He cites (p. 123) the case of a report consisting of two psi studies, of which only the significant experiment was later cited while the failed replication was ignored. Yet Alcock himself cites Wilson (1964) as having failed to obtain evidence for ESP, whereas, as was mentioned above, that was true of only one of Wilson's two studies: the first study had given significant results, but Alcock cites only the non-significant analyses.

Because of the widespread (but dubious) assumption that psi knows no barriers in time or space, it is perhaps not surprising that a critic would label the psi hypothesis unfalsifiable and untestable: 'psi' can and has been used to explain any unanticipated deviation from chance, as well as null results. Experimenters sometimes do not know when to call it a day and decide that no psi seems to have been present in their results. However, falsifiability, like replicability, is not an all-or-none characteristic: it is a continuous variable, with

certain sorts of hypotheses being more easy to falsify than others. I would suggest that hypotheses involving consciousness and behaviour may be less easily falsified than physical conjectures, again because the large number of variables provides alternative explanations and creates difficulties in experimental control.

Alcock does nevertheless raise the very important question: If psi does *not* exist, how will we come to that conclusion? When should we give up the search? This would make an interesting round-table at a parapsychology convention.

However, Alcock erroneously defines experimenter effect as *the* cause of failures to replicate, whereas parapsychologists would consider it as being simply one possible candidate for the explanation. Yet though the hypothesis should not be used as a panacea, the fact that the experimenter effect has been demonstrated under rigorous conditions surely gives us a license to conjecture its operation in other studies. The scope of that operation is admittedly unknown and an enormous challenge to experimental ingenuity.

Alcock gives a short and very ignorant critique of the sheep-goat effect and the decline effect, always attributing them to faulty testing procedures. Alcock thinks the sheep-goat effect to be due to differential sensitivity to sensory cues. Yet how would this explain psi-missing on the part of the goats? Moreover, there are cases where the sheep-goat effect was observed under precognitive conditions, that is, where the targets did not exist at the time the guesses were made (e.g. Thalbourne, Beloff and Delanoy, 1982). Future targets do not emit sensory cues. Again, Alcock has a fetish for citing scepticism as the one and only reason why experiments give null results, overlooking the many other variables which could plausibly account for the failure.

Alcock similarly exploits the existence in the literature of poorly controlled experiments. But again, is it reasonable to declare these as being typical of a whole research field? How does the reader know whether Alcock's choice of studies is representative? Our author then goes on to make the insidious statement that perhaps, since there are faults in so many studies, even those that appear sound probably have hidden faults that would destroy their claim to have produced evidence for psi. This is the 'But there must be something wrong somewhere, even though I can't say what it is!' argument. It is itself bordering upon unfalsifiable, and for that reason unscientific.

This is not the place to discuss at length whether replicability is, as Alcock implies, a necessary condition for a field to be considered a science. I wish merely to suggest that replicability *per se* does not necessarily have a critical bearing on the *existence* of the phenomenon. Psi may exist without being adequately replicable. The experience of déjà vu undoubtedly exists, but we have yet to see it reliably elicited under laboratory conditions. Falling in love may be in a similar category, along with genius and cosmogenesis. Science may in such cases have to content itself with being observational rather than experimental, but does that make it less than science? Even if it does, do the phenomena in question for that reason not exist?

Chapter 7 is entitled 'Parapsychology and Statistics'. In this the author tries to show that statistically significant results are due to 'uncontrolled variables which influence experimental results and/or the vicissitudes of statistical analysis.' (p. 147). Alcock begins by reminding us that we should not automatically leap

from extrachance results to the conclusion that psi is the explanation of them. What we have is anomalies. This argument is currently being propounded by Marcello Truzzi and John Palmer, and is well taken. Parapsychology's scientific image would be enhanced if we were to exercise greater caution and humility in interpreting the meaning of our significant departures from chance.

Alcock goes on to argue that parapsychologists should make greater use of control groups, as a check on the influence of extraneous variables, rather than simply comparing scores to the mean chance expectation. I confess that either I have missed the profundity of this rather vague suggestion, or it is indeed misconceived. If we have a group of unversity students whose average IQ is 125, can we not compare that directly with the known population mean of 100, rather than having to obtain a random sample from the entire population to demonstrate that under 'control' conditions the average IQ is indeed 100?

This chapter is infuriating. Every few sentences, a charge is levelled which cries out for justice. It is filled with elementary statistical exposition interspersed with wrong-headed applications to parapsychology. For example: '. . . if the size (N) of the samples is large enough, we should expect to find "significant differences".' (p. 150). *Not* in the case of psi-scores obtained from the use of properly random targets! In addition, Alcock derides the small magnitude of the effects typically claimed in parapsychology, when their very *existence* should be of enormous interest to the theoretician!

The chapter contains many statistical arguments, not all of which I feel qualified to comment upon. There are certainly a number of highly debatable assertions. And the question arises, could his critique be an indictment of the use of statistics *everywhere*, not just within parapsychology? Moreover, many of the criticisms are largely over-stated or mis-stated for older psi studies and inapplicable to modern studies. The chapter could perhaps be of some benefit to a student by alerting him or her to some of the pitfalls to aovid in designing tests of psi.

In summary, then, Alcock's criticisms of parapsychological science are what would be expected from someone whose acquaintance with the field is relatively superficial; moreover, they are marred by an *a priori* determination to find an excuse to dismiss all positive evidence of psi. Rhetorical methods include innuendo, *ad hominem* attacks on researchers, biassed choice of words and scare quotes. Scrupulous adherence to impartiality is not noticeably in evidence. Lapses of literary scholarship are not uncommon: the P.A. is referred to as the 'Parapsychology Association', the Quarter Distribution as the 'Quartile Distribution', optional stopping as 'optimal stopping'; 'animism' is erroneously derived from Greek; and the names of Whately Carington and Shipi Shtrang are misspelt.

We turn now to the earlier chapters, which attempt to trace the processes leading (by normal routes) to belief in psi. Chapter 2 gives an account of religion, arguing that the processes leading to the adoption of religious beliefs may be similar to those for psi beliefs. Considering that he accuses parapsychology of using untestable hypotheses, Alcock is very lenient towards similarly untestable conjectures in the sociology of religion! He tries to distinguish between magic (thaumaturgy) and religion (theology), and acknowledges that their relationship to rationality is unclear. Would that he had remembered his own words when

later in the book he calls parapsychologists irrational because they admit the idea of magic (teleological causation, wish-fulfillment). He erroneously calls Transcendental Meditation a religion. He catalogues a number of hypotheses about the origin of interest in the paranormal, together with the woefully inadequate evidence for those theories. At times, these ideas verge on the banal: 'It is likely that the current upsurge in interest in the paranormal is, in part, motivated by curiosity about the unknown' (p. 35). He ends with a clarion call to rationality, and implies amongst other things that all courses in parapsychology lack critical acumen.

Chapter 3 is entitled 'The Psychology of Belief'. Not much is directly relevant to parapsychology. Alcock does claim that the evidence of a relationship between belief in psi and personality dimensions is 'weak and inconsistent'. One might point out that the evidence is on the contrary, very good that psi-believers tend to be more extraverted and more conservative than disbelievers (e.g. Thalbourne & Haraldsson, 1980; Thalbourne,1981). This finding has been replicated a number of times, unlike that which Alcock cites from his own single study in which he found believers to be more dogmatic and less able to think critically (Alcock & Otis, 1980). He appears to use a double standard when it comes to replicability. Moreoever, more work needs to be done comparing those professionals who work within parapsychology with those who are professional *critics* of the field. Personality differences, if any, might not be the same for those persons as for students or the general population.

A variable that psychologists of belief might consider examining more closely is what I have called the 'expansionist-conservative' dimension (Thalbourne, in press): perhaps psi-believers and disbelievers differ in their willingness to make certain sorts of scientific mistake, namely, what statisticians call the Type I Error and the Type II Error. In the case of the Type I Error, it is seen as more undersirable to *fail* to discover genuine psi phenomena when they are really there, than occasionally to accept the evidence as pointing to psi when, it turns out, psi was really not there. Researchers who are willing to risk making Type I Errors I term 'expansionists'. they prefer to spread wide their net in the hope of discovering novel phenomena and thereby conquering new territory for science. It is an essentially *liberal* scientific attitude.

In contrast, we have the Type II Error, favored by those whom I call 'conservatives'. Such researchers are more apprehensive about—or see as more costly—their making the mistake of saying that an event was psychic when in reality it turns out not to be so. They would rather occasionally miss out on the real McCoy than approve a fake. Better to have an incomplete catalogue of nature than one bulging with interlopers.

Chapters 4 and 5 are arguably the most interesting and useful in the book. Indeed, I refer my parapsychology students to them for normal explanations of apparent psi. For there are numerous ways in which our senses and memories can mislead us, and in praticular, lead us to interpret our experience as paranormal. Moreover, a certain number of coincidences of an amazing kind do occur by chance and indeed should be expected to occur. Our reasoning processes are subject to all sorts of error and bias, especially as regards estimates of probability. Alcock performs a valuable service in reminding us that the fallibility of our judgement is much greater than we would like to think.

By contrast, Chapter 8, 'The Public Debate Continues', is one of the least satisfactory in the book. Again, parapsychology is criticized by juxtaposing it with dubious claims concerning astrology, UFOs, Triangles Bermudan and otherwise, Carlos Castaneda, and so on. Had these latter irrelevant topics been excluded from the book it would have been rather shorter and certainly fairer. There is an altogether excessive emphasis on the failures of popular parapsychology, again at the expense of professional psi research. It is as if the author has taken the opportunity to unburden himself of his complaints against *all* anomalies, so as thereby to accuse parapsychologists of being opponents of rationality.

In his concluding chapter, Alcock paints a horrified picture of possible implications of the existence of psi. He assumes all the while that psi would have to be omnipotent and omniscient, rather than simply able to actualize wishes but only provided that certain conditions obtain, with the result that psi is usually inoperative since only rarely is that set of necessary conditions ever assembled. He castigates parapsychologists because of their manifest failure to achieve consensus regarding the evidence for psi, all the while overlooking the fact that opnion amongst his brethren psychologists is so diverse that John Beloff (1973) named his textbook *Psychological Sciences,* plural.

One of the most annoying tendencies displayed by Alcock in this book is the implicit assumption that rationality is the monopoly of the sceptics—that while psi-believers are the puppets of their need to believe and their woefully error-prone thought processes, the disbeliever is coolly aloof from such mortal failings. Alcock very rarely applies his theorizing to disbelief, yet every disbelief is merely the negative of a belief. Emotion and will to disbelieve are part and parcel of the evaluative processes of the critic. Alcock usually (though not always) fails to note this, with the result that he occasionally and unwittingly makes the very same sorts of error that he accuses psi-believers of committing! As Donald Bannister (1966) might say, Alcock is a psychologist whose theorizing fails to be 'reflexive'—that is, to apply not only to other people but also to himself and those like him. We might thus re-write the blurb on the back cover of the book as follows: 'Every sceptic is prone to deny causality where it in fact exists, to interpret certain classes of experience as ordinary when they are in fact quite extraordinary, to maintain erroneous beliefs even in the face of evidence to the contrary', and so on.

Throughout the book, Alcock frequently uses the expression 'magical thinking'—the notion that merely willing or wishing an event will cause it to happen. As G. R. Price (1955) put it:

> In the scientific process, each successive detail is provided for. In the magic process, there are just the wish and the result, and all intermediate steps are omitted. (p. 361).

Such writers imply that if a researcher admits the possibility of such a form of causation, then they are being unscientific, even pseudo-scientific. Alcock imputes to parapsychologists a belief in magical causation, and this is one of his main reasons for labelling psi-research a pseudo-science. (Presumably, then, if some hitherto unknown form of energy were discovered to account for telepathic phenomena, for example, and thereby provided the 'missing link' between wish

and end result, psi research would be duly admitted as a fully fledged science.) Mackenzie & Mackenzie (1980) have discussed in detail the origin of this distaste for the concept of direct action of wishing, and the threat that it poses to prediction in a mathematically ordered universe of matter in motion. These historians concede that in this respect parapsychology *is* indeed anti-scientific, depite all the other trappings—methodology, professionalization, and so on—that mark it out as a scientific discipline. It is something of a paradox that parapsychologists use scientific methods to investigate claims which, if true, would erode confidence in basic scientific assumptions. Thus, depending upon one's defininition of 'science', parapsychology may or may not be considered scientific (Mackenzie, 1978).

Alcock goes to some lengths to try to account for the origin of our undoubted tendency to use magical thinking. He locates it in infancy, when the child's 'universe is centred on himself, and he believes that his actions can control or influence objects without need of physical contact' (p. 93). Yet there may be another and much more obvious explanation: we tend to control our own minds and bodies by a process subjectively akin to magical thinking. Alcock himself gives an example of this:

> . . . think of ('remember') your mother's maiden name. For most people this leads to the immediate appearance of the name in consciousness. But how was it found, how did it 'pop into mind'? It is the result of unconscious cerebral activity that underlies all conscious thought. We have no idea how we find names. We want them and usually they appear, as if by magic (p. 64).

Notwithstanding that 'unconscious cerebration' is a hypothesis and not an established fact, similar examples of apparent 'magic' could be multiplied: for instance the seemingly 'miraculous' way in which a concept in mind can be automatically translated into movements of the vocal chords which produce speech. Fatigue, alcohol, paralysis, all may cause our control to be lessened or in abeyance, but in general our psychophysical system is the willing slave of its master. Is it any wonder, then, that we tend to believe in the magical efficacy of wish and volition operating, on occasion, *outside* of our own bodies as well as within?

In a very real sense, then, it is a sort of magic—the exosomatic manifestations of wish-fulfilment—that parapsychologists are trying to investigate, and we should not be ashamed to admit it. A hitherto unknown chain of physical causation between wish and result may or may not eventually come to light. But at this stage of the enquiry, it would be helpful if both sides of the debate kept their minds open to the two possibilities. A parapsychologist whose allegiance is to physicalism is not a contradiction in terms! Furthermore, the emotional threat of unbridled ability to fulfill our wishes—a sort of psychic dynamite—should not be used as an excuse to denigrate the few brave researchers willing to examine apparent manifestations of such ability. Perhaps a more accurate title for Professor Alcock's book would have been, not *Parapsychology: Science* or *Magic*, but rather *Parapsychology: the Science* of *Magic*.

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McDonnell Laboratory for Psychical Research,
Washington University,
St. Louis,
MO 63130,
U.S.A.